This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) (Amended Once) An apparatus for ~~analyzing~~ inspecting a plurality of image portions of at least a region of a sample for defects, the apparatus comprising:

a plurality of processors arranged to receive and analyze at least one of the image portions, the processors being arranged to operate in parallel and being dynamically configurable to implement one or more algorithms selected from a plurality of different algorithms for analyzing the image portions to determine whether the corresponding regions of the sample are defective; and

a data distribution system arranged to receive image data, select at least a first processor for receiving a first image portion of the image data and one or more first algorithms selected from the plurality of different algorithms, select at least a second processor for receiving a second image portion of the image data and one or more second algorithms selected from the plurality of different algorithms, output the first image portion to the first processor and the second image portion to the second selected processor, and dynamically configure the first processor with the one or more first algorithms and the second processor with the one or more selected algorithms.

2. (Original) An apparatus as recited in claim 1, wherein the data distribution system is further arranged to divide the image data into a plurality of image portions.

3. (Original) An apparatus as recited in claim 1, wherein the first processor is arranged to receive a first reference image portion corresponding to the first image portion and to compare the first image portion to the first reference image portion, and the second processor is arranged to receive a second reference image portion corresponding to the second image portion and to compare the second image portion to the second reference image portion.

4. (Original) An apparatus as recited in claim 3, wherein the first image portion differs from

the second image portion.

5. (Original) An apparatus as recited in claim 1, wherein the first image portion differs from the second image portion.

6. (Original) An apparatus as recited in claim 5, wherein at least a part of the first image portion is identical to at least part of the second image portion.

7. (Original) An apparatus as recited in claim 1, wherein the first processor is configured with a different algorithm for analyzing the first image portion than the second processor.

8. (Original) An apparatus as recited in claim 3, wherein the first reference image portion is derived from a corresponding portion of the sample.

9. (Original) An apparatus as recited in claim 3, wherein the first reference image portion is derived from a file used to design the sample.

10. (Original) An apparatus as recited in claim 1, wherein the first processor is arranged to receive a first reference data portion that characterizes a pattern in the sample that the first image portion corresponds to, and the first processor is also arranged to render the first reference data portion to a first reference image portion and to compare the first reference image portion to the first image portion.

11. (Currently Amended) An apparatus for inspecting a plurality of image portions of at least a region of a sample, the apparatus comprising:

a plurality of distributors arranged to receive the image portions; and

a plurality of processors that are arranged into a plurality of subgroups that are each coupled to an associated distributor, each processor being dynamically configurable to implement one or more algorithms selected from a plurality of different algorithms for analyzing the image

portions to determine whether the corresponding regions of the sample are defective, each distributor being configurable to dynamically select one or more algorithms selected from the plurality of different algorithms, output selected image portions to its associated subgroup of processors, and dynamically configure ~~its associated~~ each processor with its selected one or more algorithms, at least two of the processors being arranged to analyze at least two of the image portions in parallel.

12. (Original) An apparatus as recited in claim 11 wherein the distributors are arranged in a daisy chain configuration such that a first distributor receives the image portions and outputs one or more of the image portions to a second distributor.

13. (Original) An apparatus as recited in claim 11 wherein each subgroup of processors includes a supervisor processor that is coupled with an associated one of the distributors so as to receive the selected image portions from the associated distributor, wherein each supervisor processor is configurable to distribute the selected image portions to selected processors within its associated subgroup.

14. (Original) An apparatus as recited in claim 11 wherein a first processor is arranged to receive a selected image portion and a selected reference image portion corresponding to the selected image portion and to compare the selected image portion to the selected reference image portion

15. (Original) An apparatus as recited in claim 11, wherein a first processor is arranged to receive a selected image portion and a reference data portion that characterizes a pattern of the sample that the selected image portion corresponds to, the first processor being further arranged to render a reference image portion from the reference data portion and to compare the reference image portion to the selected image portion.

16. (Original) An apparatus as recited in claim 14, wherein the selected reference image portion

is derived from a corresponding portion of the sample.

17. (Original) An apparatus as recited in claim 15, wherein the reference data portion is derived from a file used to design the sample.

18. (Currently Amended) A method of inspecting a sample having a plurality of fine patterns thereon, and processing data resulting from the inspection, comprising:

a) receiving data derived from the inspection in a multiprocessor system, the system comprising a master processor and a plurality of slave processors;

b) dividing the data into groups using the master processor, each data group corresponding to information derived from a portion of the sample, wherein each slave processor is dynamically configurable to implement one or more algorithms selected from a plurality of different algorithms for analyzing a one of the data groups to determine whether the corresponding portions of the sample are defective;

c) selecting one or more algorithms from the plurality of different algorithms for each slave processor and configuring each slave processor with the selected one or more algorithms for such each slave processor;

d) processing the data groups with the slave processors based on the selected one or more algorithms for each slave processor; and

e) deriving defect information regarding the sample and the fine patterns from the combined data.

19. (Original) The method of claim 18, wherein the sample is selected from a group consisting of a reticle, a photomask, and a semiconductor material, device, or surface.

20. (Original) The method of claim 18, wherein the system comprises a plurality of master processors, each in communication with a plurality of slave processors, and wherein each of the master processors is in communication with a central processor, the central processor allocating data among the master processors.

21. (Original) The method of claim 18, wherein a first group of the slave processors uses one or more algorithms selected to process data with high accuracy, but at a relatively slow rate, and wherein a second group of the slave processors uses one or more algorithms selected to process data with a relatively low accuracy, but at a high rate.

22. (Original) The method of claim 18, where the data groups are processed using an algorithm which compares data derived from differing regions of the sample.

23. (Original) The method of claim 18, wherein the data groups are processed using an algorithm which compares data derived from a portion of the sample with data derived from a file used to design the sample.

24. (Currently Amended) A method for analyzing image data obtained from a sample using a plurality of processors, comprising the acts of:

receiving image data from an inspection system that generates the image data from a sample;

dividing the image data into a plurality of image portions that correspond to various portions of the sample;

outputting each image portion to a selected processor, at least some of the image portions going to different processors, each processor being dynamically configurable to implement one or more algorithms selected from a plurality of different algorithms for analyzing the image portions to determine whether the corresponding portions of the sample are defective;

selecting one or more algorithms from the different algorithms of each selected processor and configuring each selected processor with its selected one or more algorithms;

analyzing each image portion for defects within the selected processor based on the selected one or more algorithms for such selected processor; and

outputting and combining results from each processor such that defect data is compiled for the entire image data.

25. (Original) A method as recited in claims 24, wherein at least some of the image portions are analyzed with different algorithms.

26. (Original) A method as recited in claims 24, wherein at least some of the image portions are analyzed more stringently than others of the image portions.

27. (Original) A method as recited in claims 24, further comprising receiving reference data corresponding to each image portion.

28. (Original) A method as recited in claims 27, wherein each image portion is analyzed by comparing each image portion to its corresponding reference data.

29. (Original) A method as recited in claims 27, wherein the reference data is in form of a corresponding image portion of the sample.

30. (Original) A method as recited in claims 27 wherein the reference data is in form of design data that is used to construct the sample.

31. (Original) A method as recited in claims 24 further comprising receiving control data that specifies how to divide and output the image portions to their selected processors.

32. (Original) A method as recited in claims 31 wherein the control data also specifies how to analyze the image portions for defects within the selected processors.

33. (Original) A method as recited in claims 32 wherein the reference data is in form of design data that is used to construct the sample, and the control data also specifies how to render the reference data from the design data.

34. (Currently Amended) A computer readable medium containing program instructions for inspecting a sample having a plurality of fine patterns thereon, and processing data resulting

from the inspection, the computer readable medium comprising:

computer readable code for receiving data derived from the inspection in a multiprocessor system, the system comprising a master processor and a plurality of slave processors;

computer readable code for dividing the data into groups using the master processor, each data group corresponding to information derived from a portion of the sample, wherein each slave processor is dynamically configurable to implement one or more algorithms selected from a plurality of different algorithms for analyzing a one of the data groups to determine whether the corresponding portions of the sample are defective;

computer readable code for selecting one or more algorithms from the plurality of different algorithms for each slave processor and configuring each slave processor with the selected one or more algorithms for such each slave processor;

computer readable code for processing the data groups with the slave processors based on the selected one or more algorithms for each slave processor;

computer readable code for deriving defect information regarding the sample and the fine patterns from the combined data; and

a computer readable medium for storing the computer readable codes.

35. (Original) A computer readable medium as recited in claim 34, wherein each of the plurality of master processors is in communication with the plurality of slave processors, and wherein each of the master processors is in communication with a central processor, the central processor allocating data among the master processors.

36. (Original) A computer readable medium as recited in claim 34, wherein a first group of the slave processors uses one or more algorithms selected to process data with high accuracy, but at a relatively slow rate, and wherein a second group of the slave processors uses one or more algorithms selected to process data with a relatively low accuracy, but at a high rate.

37. (Original) A computer readable medium as recited in claim 34, wherein the data groups are processed using an algorithm which compares data derived from differing regions of the sample.

38. (Original) A computer readable medium as recited in claim 34, wherein the data groups are processed using an algorithm which compares data derived from a portion of the sample with data derived from a file used to design the sample.

39. (Currently Amended) A computer readable medium containing program instructions for inspecting a sample having a plurality of fine patterns thereon, and processing data resulting from the inspection, the computer readable medium comprising:

computer readable code for receiving image data from an inspection system that generates the image data from a sample;

computer readable code for dividing the image data into a plurality of image portions that correspond to various portions of the sample;

computer readable code for outputting each image portion to a selected processor, at least some of the image portions going to different processors, each processor being dynamically configurable to implement one or more algorithms for analyzing the image portions selected from a plurality of different algorithms to determine whether the corresponding portions of the sample are defective;

computer readable code for selecting one or more algorithms from the different algorithms of each selected processor and configuring each selected processor with its selected one or more algorithms;~~;~~

computer readable code for analyzing each image portion for defects within the selected processor based on the selected one or more algorithms for such selected processor;

computer readable code for outputting and combining results from each processor such that defect data is compiled for the entire image data; and

a computer readable medium for storing the computer readable codes.

40. A computer readable medium as recited in claims 39, wherein at least some of the image portions are analyzed more stringently than others of the image portions.

41. A computer readable medium as recited in claims 39, further comprising computer readable code for receiving reference data corresponding to each image portion.

42. A computer readable medium as recited in claims 41, wherein each image portion is analyzed by comparing each image to its corresponding reference data.

43. A computer readable medium as recited in claims 41, wherein the reference data is in form of a corresponding image portion of the sample.

44. A computer readable medium as recited in claims 41, wherein the reference data is in form of design data that is used to construct the sample.

45. A computer readable medium as recited in claims 39, further comprising computer readable code for receiving control data that specifies how to divide and output the image portions to their selected processors.

46. A computer readable medium as recited in claims 45, wherein the control data also specifies how to analyze the image portions for defects within the selected processors.

47. A method as recited in claims 46 wherein the reference data is in form of design data that is used to construct the sample, and the control data also specifies how to render the reference data from the design data.